

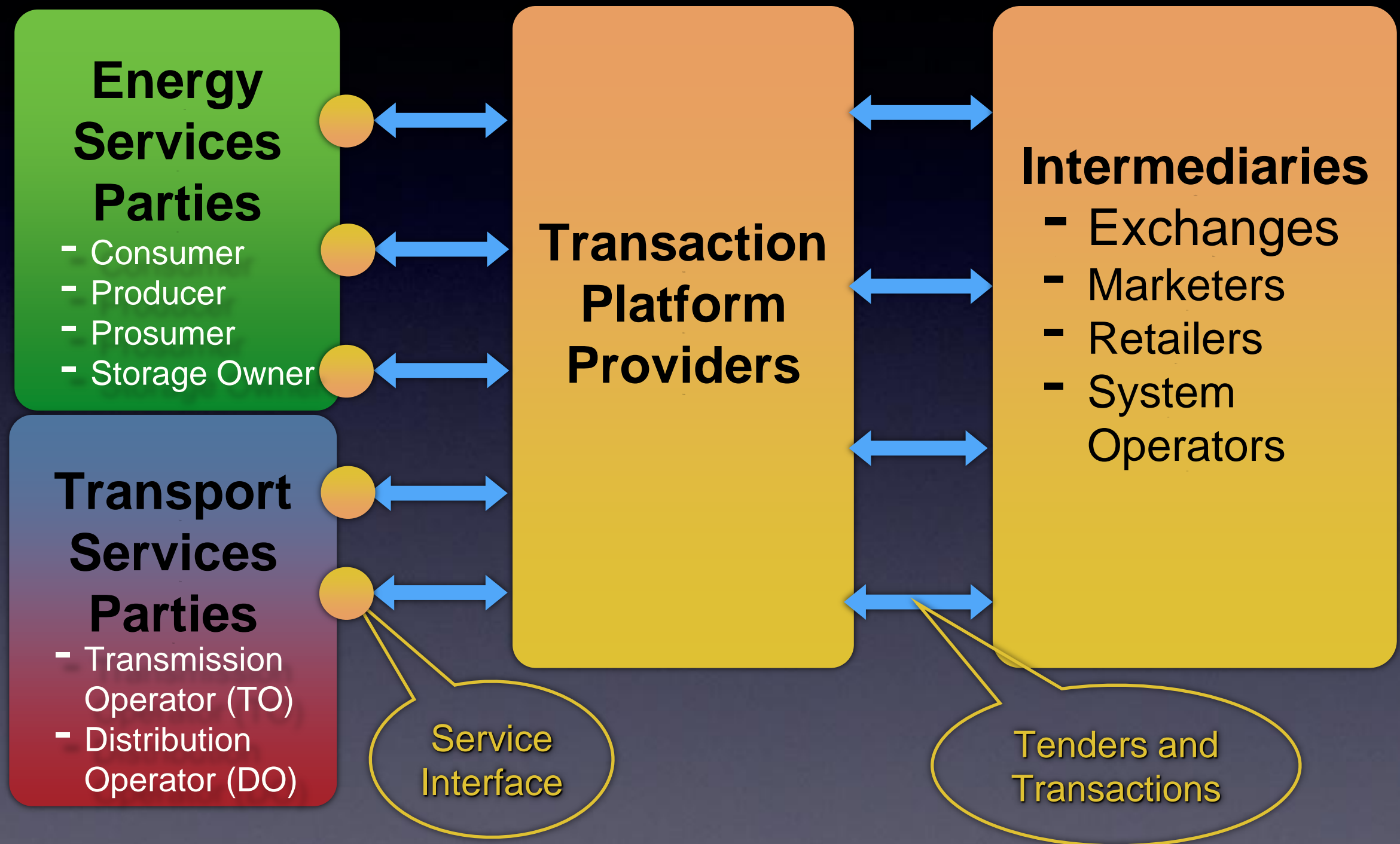
Retail Transaction Platforms for California Distributed Energy Resources

*CPUC Public Workshop – Tools and Technologies for
Distribution Resources Planning (R.14-08-013)*

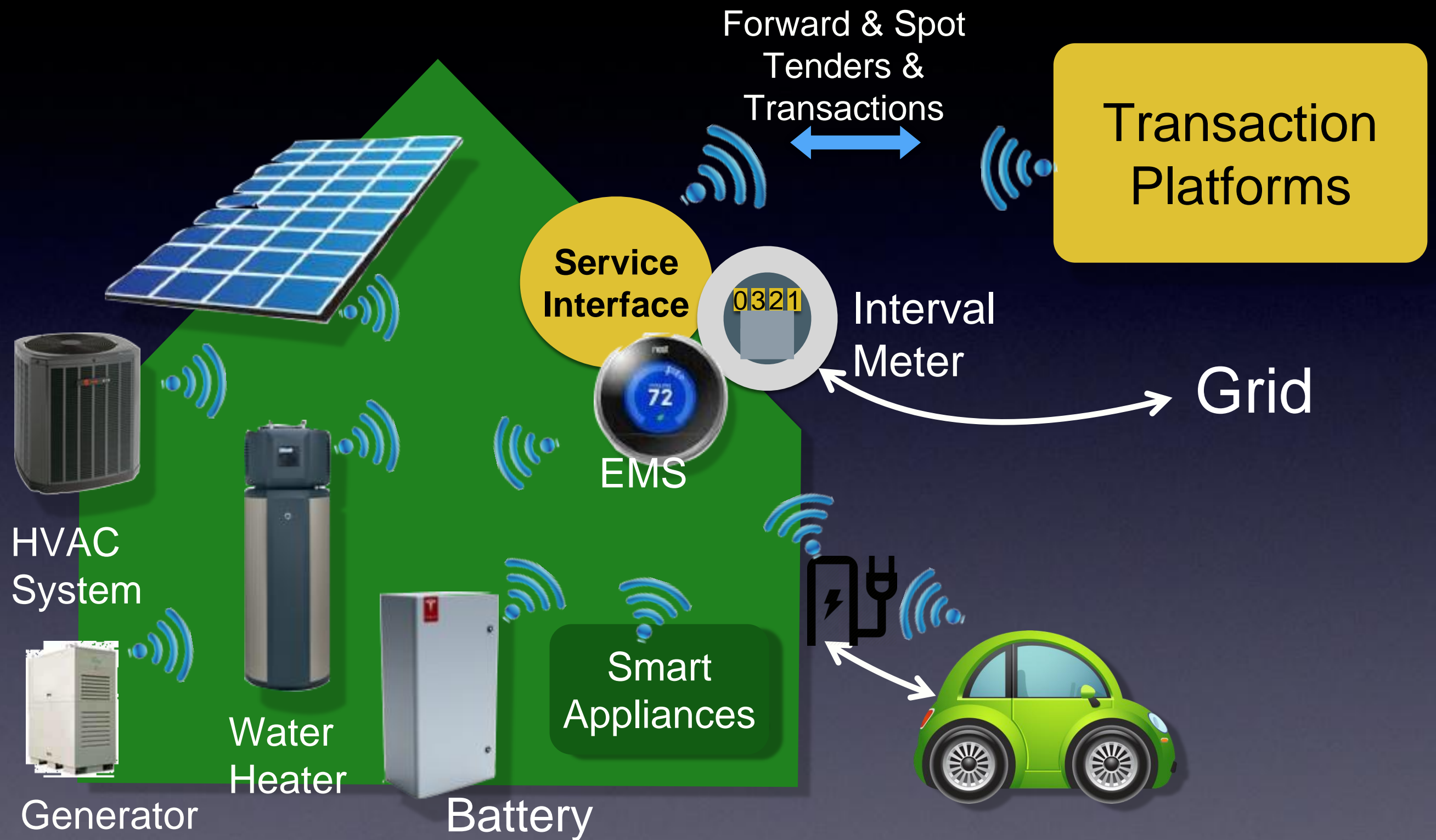
January 8, 2014

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Role of Transaction Platform Providers



A facility with DER interacting with transaction platforms



The four big ideas of Transactive Energy (TE):

Forward transactions are used to coordinate investments and manage risk.

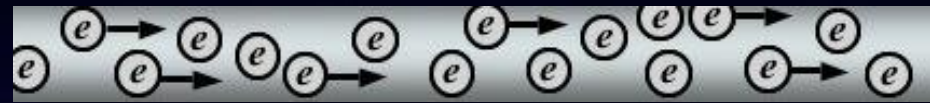
Spot transactions are used to coordinate operating decisions.

All parties act autonomously.

There are two products: energy and transport.

The two-way Transport product delivers the Energy product.

Bidirectional forward and spot transactions
(tariffs) for transport



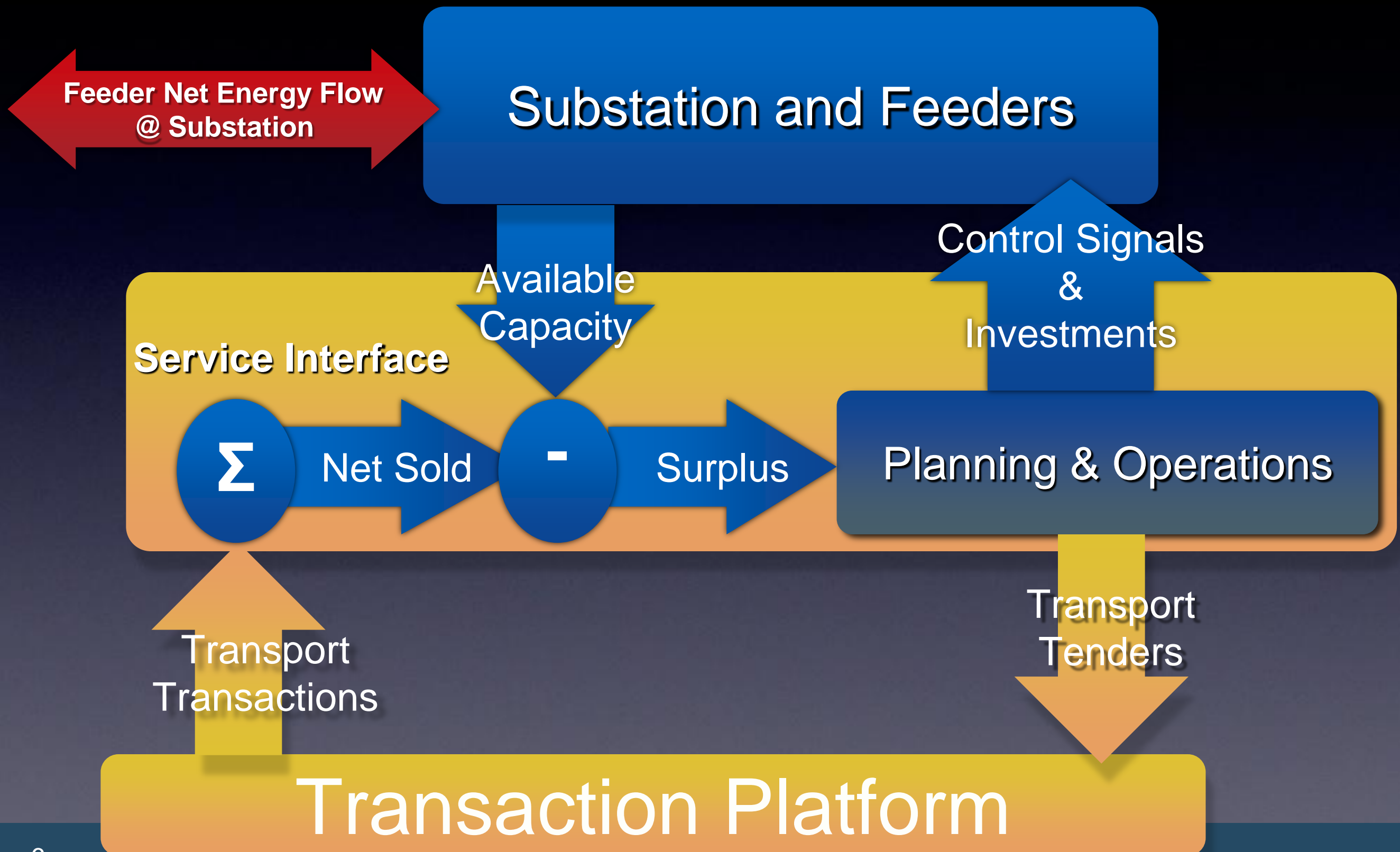
Electric energy (at a
place and time)

Example:
Transmission
Connected
Substation

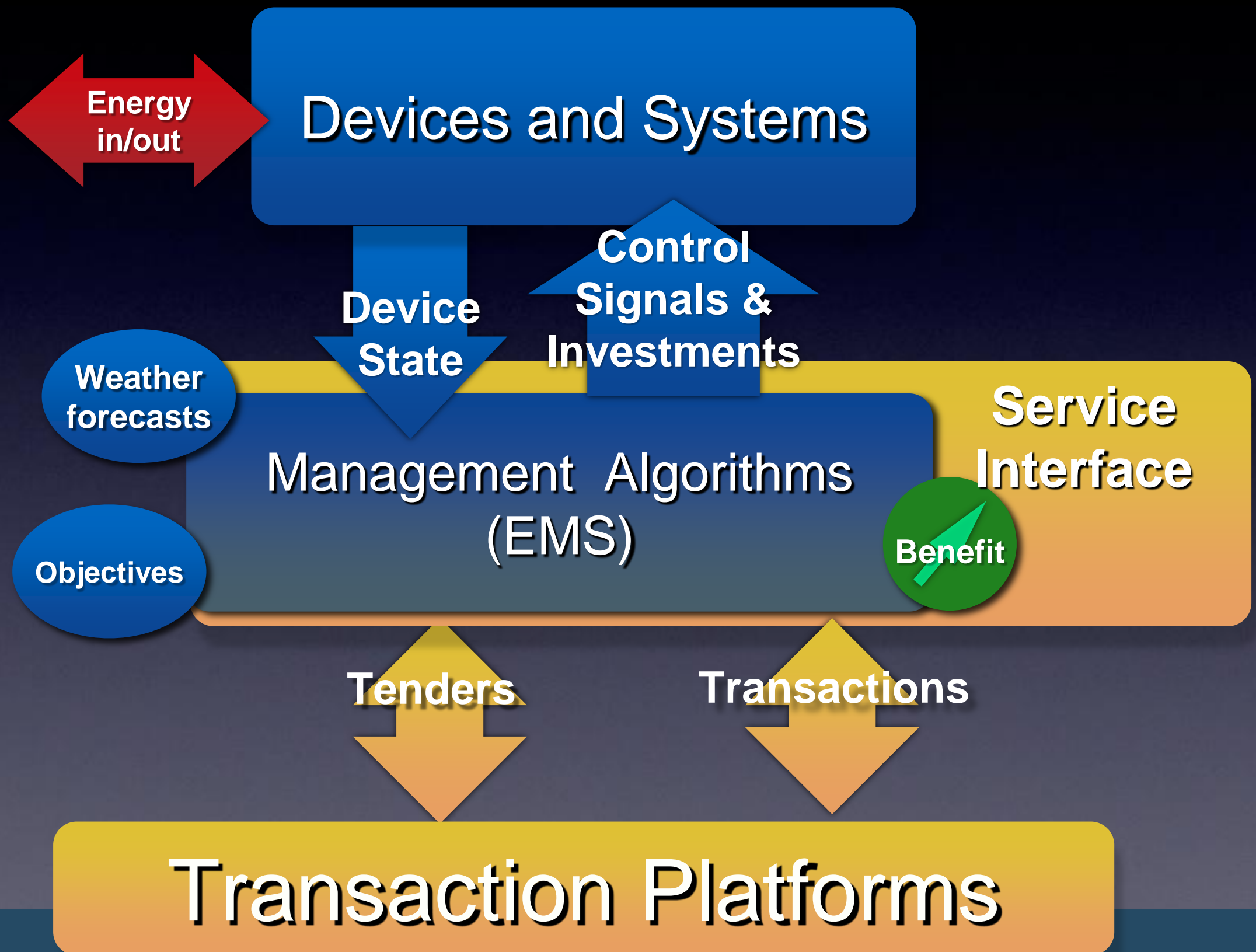
Transport
Example:
Two-way
Feeder

Electric energy
(at a different
place and same
time)
Example: Building

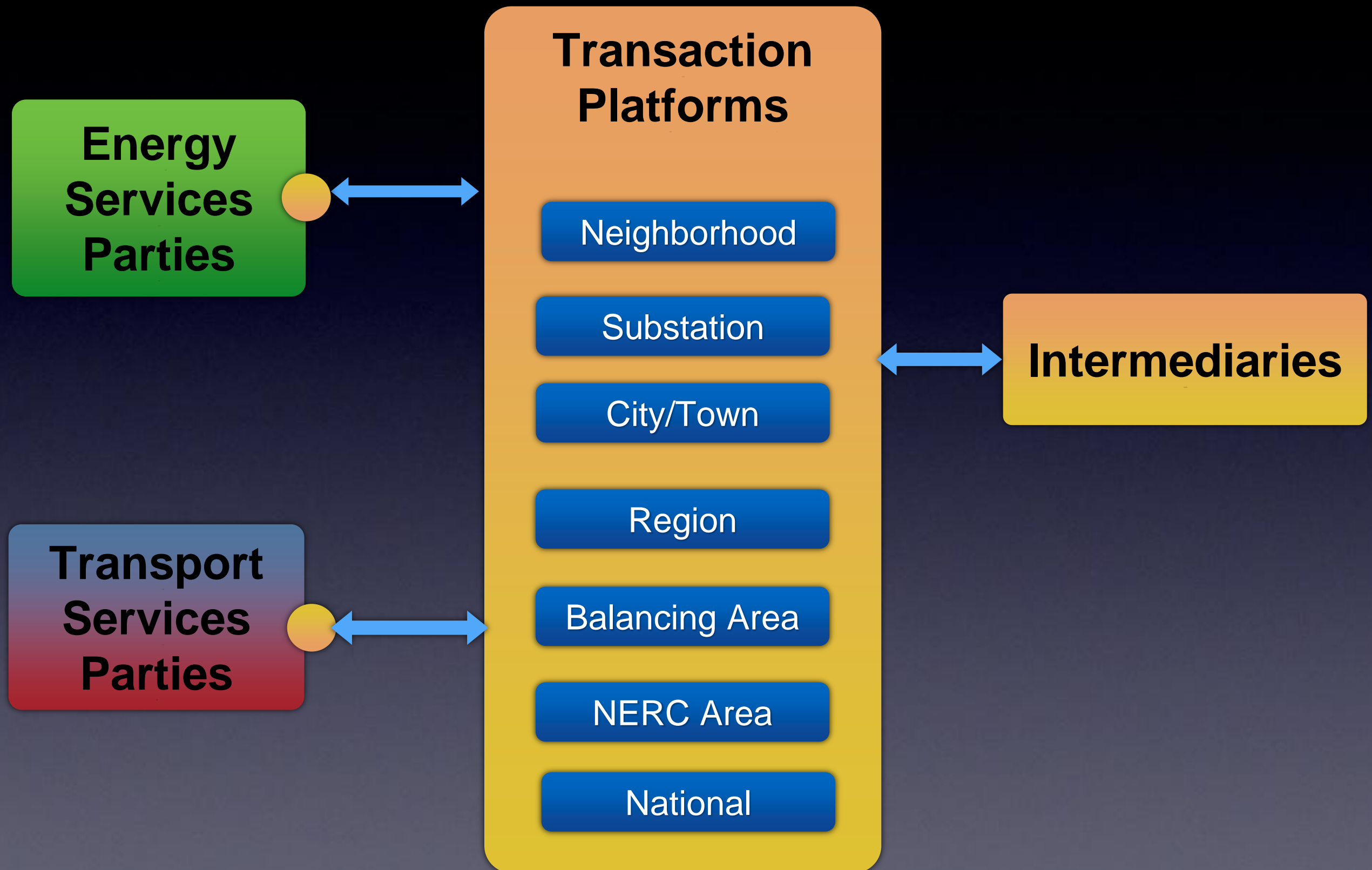
Distribution operator controls transport systems, makes investments and posts forward and spot tenders.



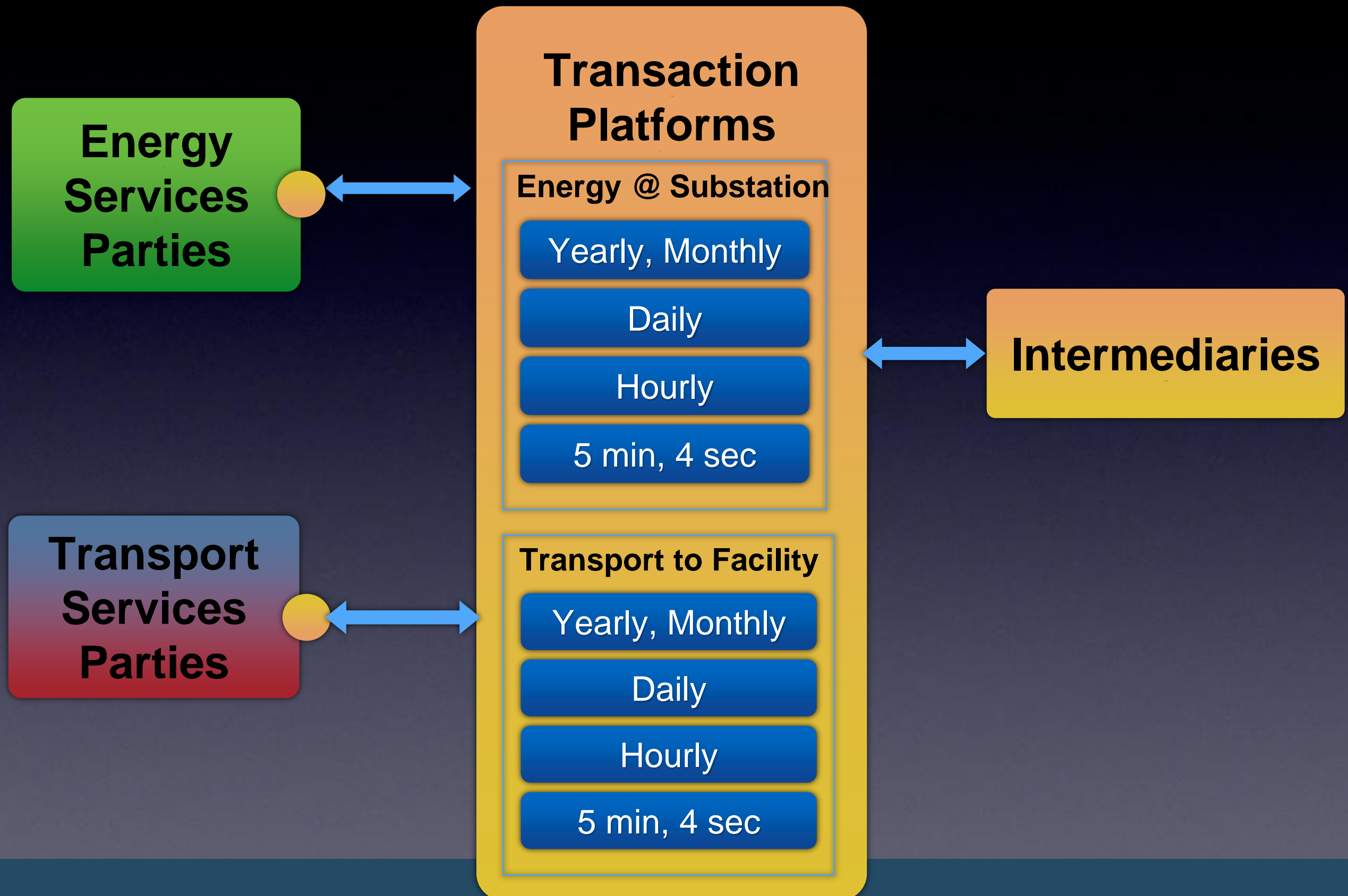
Parties automatically control devices/systems, make investments and manage tenders and transactions.



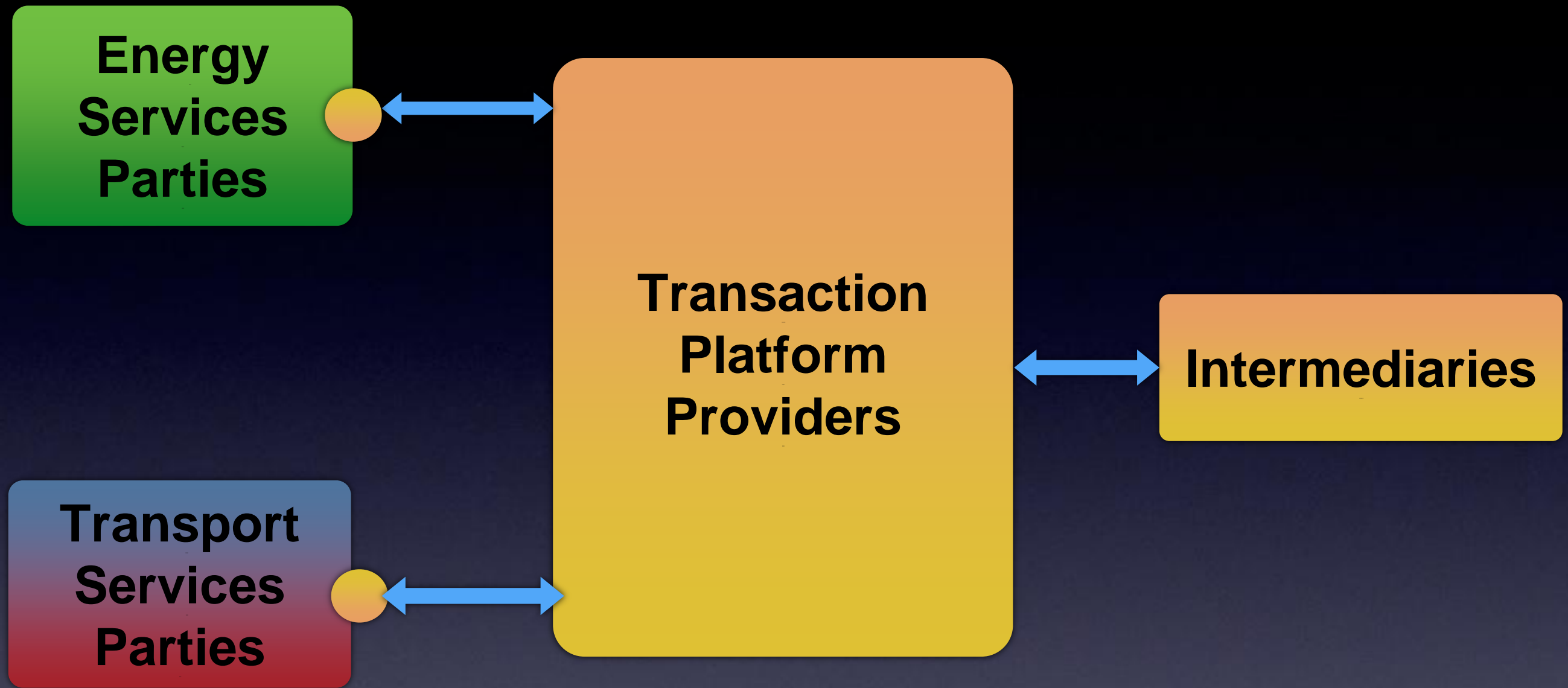
Standardized platforms can be local and interact over large areas.



Platforms may be dedicated to classes of transactions and operated by various entities.



Many TE Platforms appear as a Virtual Platform to Parties

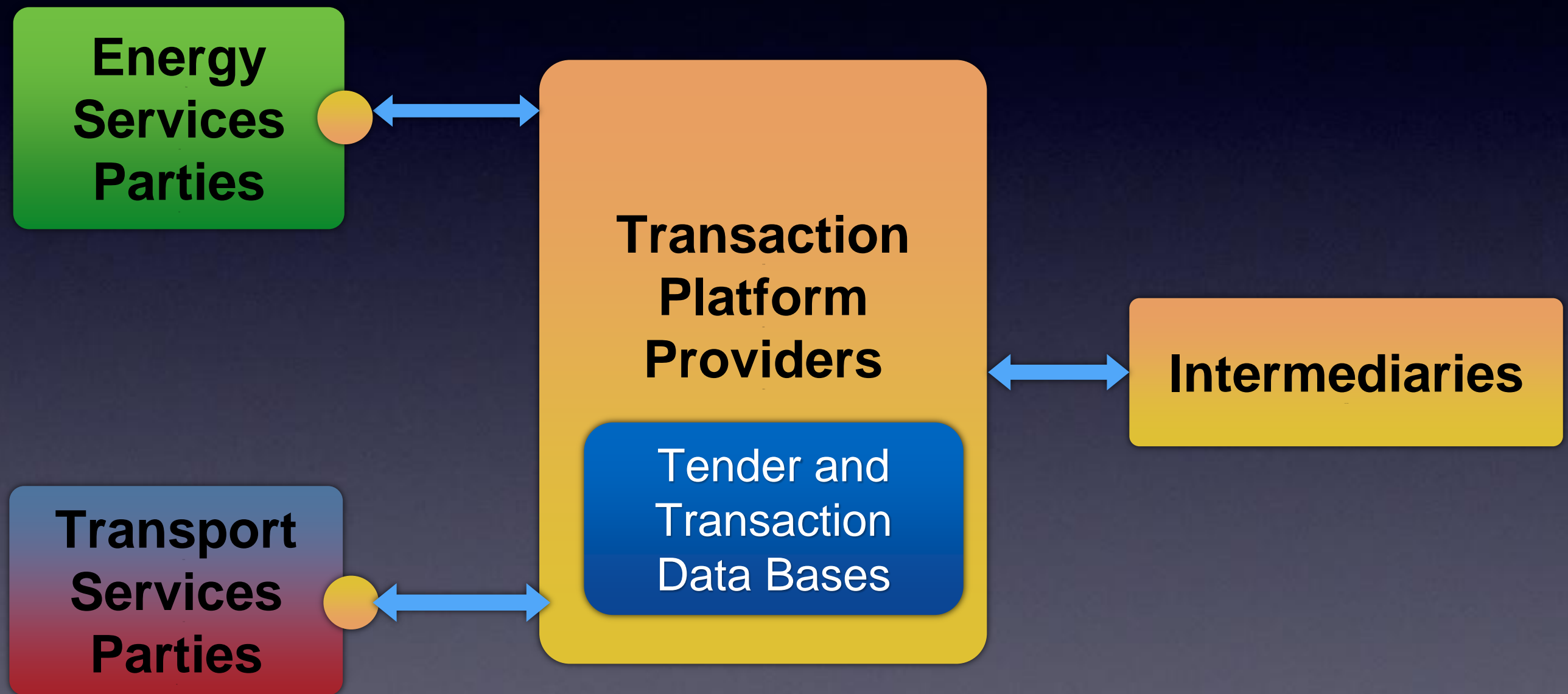


“Frequent small tenders facilitated by automated intermediaries help coordinate investments and operations of all parties.”

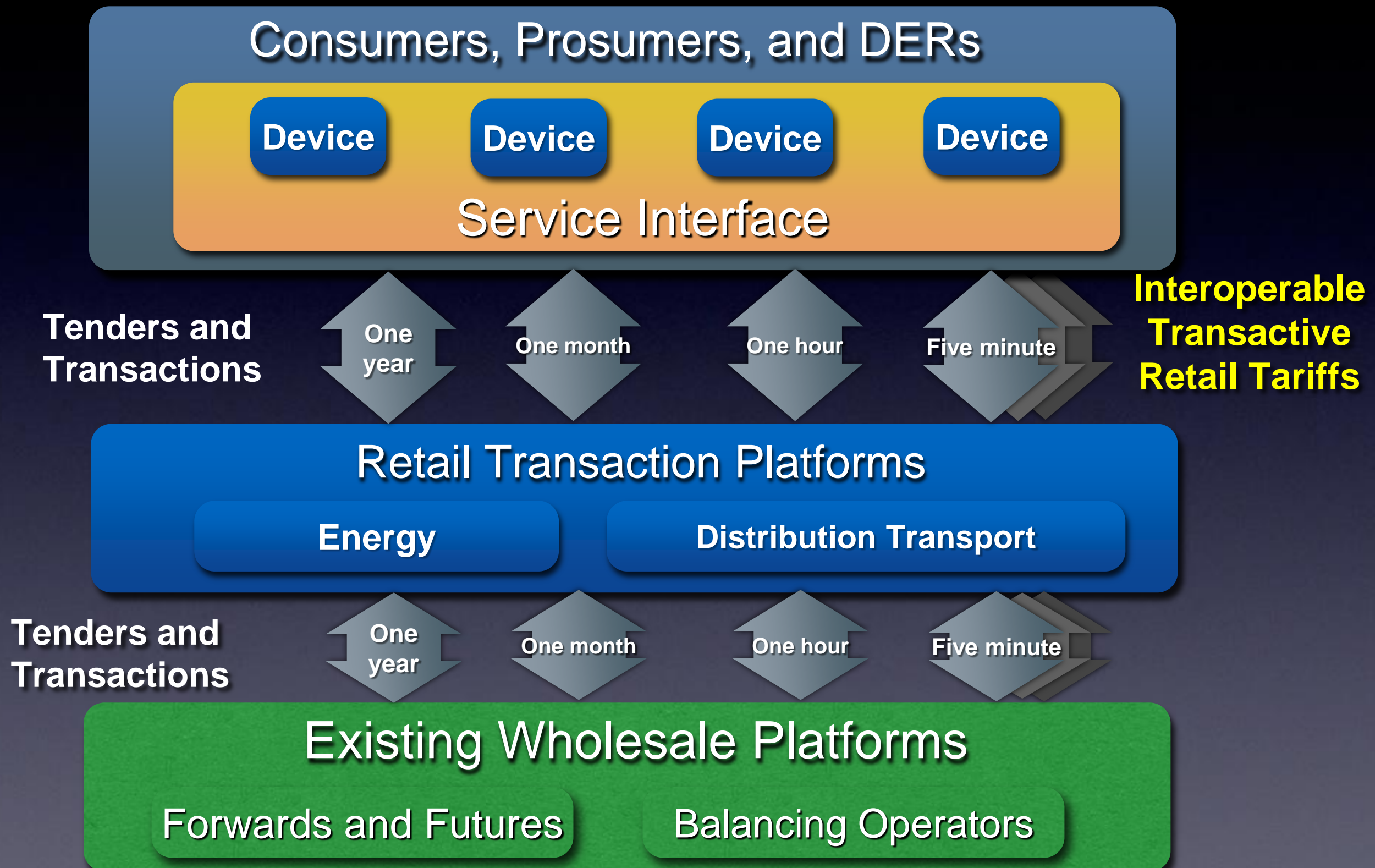
Regulators will have new tools to oversee transactions

Regulators:

Congress, DOE, EPA, FERC, NERC, Legislatures, PUCs, Munis, CCAs, PMAs, Coops



Retail platforms can be incrementally deployed to work with current wholesale platforms and retail customers.



An example of a transactive retail tariff for a consumer/prosumer.



- Based on my typical usage, I automatically transact with one or more suppliers for a fixed quantity of energy and transport in each hour of the year(s) for a fixed monthly payment (subscription.)
 - If I use less than I subscribed for in each hour then I am paid for the difference at an hourly spot price.
 - If I use more than I subscribed for then I pay for the difference at an hourly spot price.
- At any time I can automatically buy or sell at current tendered prices.



www.tea-web.org

Transactive Energy

**A Sustainable
Business and Regulatory Model
for Electricity**

**Stephen Barrager, Ph.D.
Edward Cazalet, Ph.D.**

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Proposal for Transaction Platform Demonstration and Deployment Project

- A specification for a demonstration project that seeks to implement a Transaction Platform as described in this presentation for a substation with significant DER.
- The project shall demonstrate interfaces to:
 - ✓ CAISO market
 - ✓ IOU distribution operations
 - ✓ IOU energy and distribution costs of service.
 - ✓ customer owned facilities on the feeders including the tariff and algorithms for decentralized investment and control of significant devices such as HVAC, pumping, electric water heaters, battery storage, and electric vehicles.
- This demonstration project shall be scoped to commence within 1 year of Commission approval of the DRP .